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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/485,464	02/04/00	YAMAMURA	K 48531

IM22/1107

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EXAMINER

COY, N

ART UNIT	PAPER NUMBER
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1742

DATE MAILED:

11/07/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.

09/485,464

Applicant(s)

YAMAMURA ET AL.

Examiner

Nicole Coy

Art Unit

1742

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- 1) ☒ Responsive to communication(s) filed on 05 May 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 3 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- a) ☒ All b) ☐ Some * c) ☐ None of the CERTIFIED copies of the priority documents have been:
1. ☒ received.
2. ☐ received in Application No. (Series Code / Serial Number) _____.
3. ☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

- 15) ☒ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Matsumoto et al.

Matsumoto et al. discloses a rolling bearing in which a bearing ring and or a rolling element comprising a steel containing alloy ingredients of C: 0.2 to 1.23 % by weight (Table 1), Si: 0.40 % by weight or less (Table 1), Mn: less than 2 % by weight (Col. 5, lines 44), Cr: 1 % by weight and Cr: 2 % by weight (Table 1) and Mo: 2% by weight or less (Col. 5, line 36). Matsumoto et al. further discloses that the heat treatment of the steel includes hardening and tempering (Col. 5, lines 3-4). Matsumoto et al. further discloses that the amount of retained austenite is less than 10 volume % (Col. 4, lines 44-45). Furthermore, Matsumoto et al. discloses a hardness of greater than 60 HRC (abstract).

Examiner notes that the phrase, in the pending claim, "by weight or less" encompasses the limitation of zero percent.

For the reasons stated above, the claimed invention is anticipated by Matsumoto et al.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al.

Matsumoto et al. discloses the invention substantially as claimed. Matsumoto et al. discloses a rolling bearing in which a bearing ring and or a rolling element comprising a steel containing alloy ingredients of C: 0.2 to 1.23 % by weight (Table 1), Si: 0.40 % by weight or less (Table 1), Mn: less than 2 % by weight (Col. 5, lines 44), Cr: 1 % by weight and Cr: 2 % by weight (Table 1) and Mo: 2% by weight or less (Col. 5, line 36). Matsumoto et al. further discloses that the heat treatment of the steel includes carbonitriding hardening and tempering (Col. 5, lines 3-4). Matsumoto et al. further discloses that the amount of retained austenite is less than 10 volume % (Col. 4, lines 44-45). Furthermore, Matsumoto et al. discloses a hardness of greater than 60 HRC (abstract).

However, Matsumoto et al. does not disclose the rolling element and outer ring having different compositions. Matsumoto et al. does disclose a steel composition for either the rings or rolling element having compositional ranges which overlaps those of applicants.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to find the optimum composition for the outer ring and rolling element, since it has been held that where the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation. *In re Aller*, 105 USPQ 233.

In the instant case, Matsumoto et al. discloses steel with ranges which overlap those as claimed by applicant and it would have been obvious to find the optimum range for the outer ring and rolling element.

Examiner notes that the phrase, in the pending claim, "by weight or less" encompasses the limitation of zero percent.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Matsumoto et al.

Matsumoto et al. discloses the invention substantially as claimed (see paragraph 2 above).

However, Matsumoto et al. does not disclose a rolling element formed of ceramics. Matsumoto et al. teaches a rolling element made of steel.

It is common knowledge in the prior art to use ceramic rolling elements with steel inner and outer rings in the same field of endeavor for the purpose of increasing impact resistance of the rolling bearing.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the rolling bearing as taught by Matsumoto et al. by using a ceramic rolling element in order to increase the impact resistance of the rolling bearing.

Allowable Subject Matter

6. The following is a statement of reasons for the indication of allowable subject matter: The prior art does not disclose a rolling element made of martensitic stainless steel followed by the step of nitriding, nor is there motivation to do so. Thus claim 3 is allowable.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

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8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nicole Coy whose telephone number is (703)308-3860. The examiner can normally be reached on Monday-Friday 8:00am - 4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (703)308-1146. The fax phone numbers for the organization where this application or proceeding is assigned are (703)305-3599 for regular communications and (703)305-7719 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0651.



nac
October 29, 2000



ROY V. KING
PRIMARY EXAMINER
OCT 30 11:00